

Please use this as a general guide (not an exhaustive list of questions that will be tested).

- History of cognitive neuroscience
 - What is cognitive neuroscience
 - The mind body problem
 - Phrenology
 - Holism vs. localizationalism
 - Broca and Wernicke
- Functional neuroanatomy
 - Landmarks: four lobes, gyri and sulci (e.g. ,central sulcus), orientation references (e.g., coronal)
- Methods of cognitive neuroscience
 - Methods of stimulation or imaging
 - Weaknesses and strengths of each method
 - Single vs. double dissociation
 - General basics of how each stimulation method works
 - Principles of choosing research methods (e.g., where vs. when)
- Sensory perception and visual hierarchy
 - Visual pathway from eyes to visual cortex
 - Organization of V1
 - Functional specialties of MT and V4
 - Cortical plasticity/reorganization
 - Illusory filling-in
- Object recognition
 - What vs. where/how pathways
 - Grandmother cell vs. ensemble coding
 - Agnosias
 - Face processing (expert?)
- Hemispheric specialization
 - Function of the corpus callosum
 - Split-brain studies
 - LH: language
 - RH: visual-spatial and motor
 - Functional asymmetry in ventral pathway
 - Global/ local hypothesis
 - Spatial frequency hypothesis
 - Functional asymmetry in dorsal and ventral pathways
- Attention
 - What is attention?
 - Behavioral paradigms for studying attention (visual search, Posner cueing, Stroop).
 - Bottleneck model

- Overt vs. covert attention
- Voluntary vs. reflexive attention
- Early vs. late
 - Effects on ERPs
 - Effects on fMRI.
 - Evidence for late selection (semantic processing of distractors)
- Visual search (feature vs. conjunction search)
- Spatial neglect
- Memory
 - Multiple memory systems
 - Sensory memory, working memory, long term memory
 - Differences in capacity & endurance
 - Amnesia
 - MTL and memory
 - Recollection vs familiarity
 - Remember versus know
 - Neural substrates: hippocampus versus parahippo
 - Beyond episodic memory:
 - declarative and non-declarative memory
 - implicit memory
 - False memory and memory distortion
- Emotions
 - Emotion classification
 - 6 emotions
 - Valence & Arousal
 - Amygdala
 - S.M.
 - High and low road
 - Neural substrate for anger and disgust
- Cognitive control
 - Infinite regress problem
 - WM involvement
 - Dynamic filtering hypothesis and supporting experiments
 - Task switching
 - Temporal memory
 - Error/conflict monitoring
- Language
 - Aspects of language
 - Structure of language
 - Lexical semantics
 - Word frequency
 - Sentence comprehension

- Garden path model
 - Constraint-based model
- Consciousness
 - Terri Schiavo
 - Pinker's 3 types of consciousness
 - Function of consciousness
 - Dual-aspect theory
 - Hard problem of consciousness
 - Access consciousness and phenomenal consciousness
 - Libet study